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10. (Amended) A system for modifying a virtual object by a user in a haptic virtual environment, the system comprising:

a virtual tool comprising a plurality of discrete points for use by the user in the haptic virtual environment, wherein the user selects a modification mode for the virtual tool other than a surface deformation;

a haptic interface device, wherein the haptic interface device senses a location of the user in real space;

a modeling application in communication with the haptic interface device, the virtual object, and the virtual tool, wherein the modeling application determines locations of the plurality of discrete points of the virtual tool relative to a location of the virtual object; calculates an interaction force between the virtual tool and the virtual object based on the locations of the plurality of discrete points of the virtual tool and the location of the virtual object; produces a modified virtual object by modifying the virtual object based on the modification mode; the locations of the plurality of discrete points of the virtual tool, and the location of the virtual object; and outputs the modified virtual object.